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Measuring the surface area, pore size, and density of ceramic materials

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Porous properties impact performance of ceramic materials. Porosity is desirable in light-weight products, thermal insulation, catalyst supports, wicking, and filtration uses. Negative aspects of porosity include friability, loss of strength, undesirable fluid absorption etc. The performance of many sintered or cast ceramic structures may be predicted from the specific surface area of the starting ceramic powder, and monitored during their production processes. Two of the most important ceramic characteristics that are measured in quality control applications are density and porosity. These properties are very much inter-related, and it would be unusual for a change in one not to affect the other. This presentation will be a brief overview of the measurement techniques used to quantify the properties mentioned above.